ABSTRACT

Systems and methods employing a weighted zero crossing sum metric ($WZCS_M$) derived from the EGM that improves the specificity of discriminating between a monomorphic tachyarrhythmia and a polymorphic tachyarrhythmia are provided that examine frequency content and baseline information of the EGM as discriminatory signatures are disclosed. In preferred embodiments, high rate polymorphic QRS complexes are discriminated from high rate monomorphic QRS complexes to increase the specificity of detection of polymorphic VT and VF. Zero crossing points (ZCPs) and weighted ZCP slopes of the high pass filtered EGM signal in baseline and sense event windows are identified. The weighted ZCPs of the baseline window are summed to provide a baseline $WZCS_B$, and the weighted ZCPs of the VSENSE event window are summed to provide a VSENSE event $WZCS_E$. A $WZCS_M$ is derived from the VSENSE event $WZCS_E$ and the baseline $WZCS_B$ that is compared to a threshold.